*: p < 0.05	S peak		E peak		A peak	
cm/s	patient	control	patient	control	patient	control
basal septal	7.2 *	4.6	-10 *	-6.9	-5.2	-3.9
mid septal	4.7 *	3.2	-9.3 *	-5.5	-4.2 *	-2.6
%o of cardiac cycle	IVRT		VHT			
basal septal	81	74	169 *	126		
mid septal	90 *	59	173 *	126		

POSTER SESSION

1113 Surgery and Supraventricular Arrhythmias

Monday, March 31, 2003, Noon-2:00 p.m.
McCormick Place, Hall A
Presentation Hour: 1:00 p.m.-2:00 p.m.

1113-1 Surgical Ablation of Atrial Fibrillation: Clinical Results and Predictors of Success

Mauricio Garrido, Mathew R. Williams, Deon W. Vigilance, Jennifer Casher, Ann Zeidner, Aftab R. Kherani, Jeffrey A. Morgan, Hadar Hermoni, Yoshifumi Naka, Craig R. Smith, Mehmet C. Oz, Michael Argenziano, Columbia University, College of Physicians and Surgeons, New York, NY

Background: Recent studies suggest that atrial fibrillation (AF) originates within the left atrium (LA) near the pulmonary veins, and that isolation of this region may successfully cure AF. **Methods:** Patients with AF of at least 6 months duration underwent surgical atrial fibrillation ablation (SAFA) as a concomitant cardiac surgical procedure. Lesions were created with a variety of energy sources, including unipolar radiofrequency, microwave, laser, and bipolar radiofrequency performed endocardially or epicardially, on the arrested or beating heart and via sternotomy or minithoracotomy. Lesion sets included isolation of all pulmonary veins and LA appendage ± mitral annulus lesion. **Results:** Over 3 years, 139 patients underwent SAFA at our institution. Mean age was 65±12 years (range:31-84), 51% were male, and mean preoperative duration of AF was 4.8±3.7 years (range:0.5-40). Mean LA diameter was 6.5±1.7cm (range:3-12), and mean SAFA procedure time was 12.0±6.1 minutes (range:3-25). Actuarial freedom from AF was 72% at 6 months postoperatively, and in the 88 patients with at least 6 months follow-up, 71% were free from AF at the most recent follow-up (mean:15.0 months). Preoperative variables predictive of success at 6 months included gender (79% male vs. 67% female), AF duration (80% <3yrs vs. 69% >3yrs), and LA size (87% <6cm vs. 59% >6cm). Age, nature of concomitant operation, creation of a lesion to the mitral valve or energy source did not influence outcomes. **Conclusions:** Surgical atrial fibrillation ablation is effected rapidly by a variety of energy sources and approaches, and results in elimination of AF in 70% of patients. Severe LA dilation and AF duration >3 years are associated with inferior success rates.

1113-2 Supraventricular Arrhythmias in Ebstein's Anomaly: Management and Outcome

Anant Khositseth, Gordon K. Danielson, Thomas M. Munger, Co-burn J. Porter, Mayo Clinic, Rochester, MN

Introduction: Ebstein's anomaly is associated with symptomatic arrhythmias, particularly accessory pathway mediated reciprocating tachycardia (APMRT), AV node reentry tachycardia (AVNRT) and atrial flutter/fibrillation (AFl/F). This study evaluated the management and long-term outcome of patients with Ebstein's anomaly and these arrhythmias.

Patients and Methods: Between 1990 and 2001, 131 patients (pts) with Ebstein's anomaly and arrhythmias were evaluated at the Mayo Clinic. Of these pts, 107 had an electrophysiology (EP) study. Based on the mechanism of arrhythmia by history, ECG and EP study, the patients were divided into three groups: (A) 49 with APMRT, mean age 18.4 ± 13.1 yrs; (B) 7 AVNRT, mean 19.7 ± 14.5 yrs; and (C) 54 AFl/F, mean 35.4 ± 8.4 yrs. We excluded 21 pts including 18 pts with a negative EP study, 1 case with junctional tachycardia and 2 cases with ventricular tachycardia.

Results: Forty-one pts underwent successful surgical intervention for accessory pathway (AP) (26 surgical division, 11 cryoablation, and 11 combined procedures). Ninety percent of pts were followed a mean of 46 ± 38 months (range 3 to 136 months). There was no recurrent APMRT. Four of 6 pts underwent successful radiofrequency ablation of AP without complication or death. Of 7 pts with AVNRT, 4 underwent successful perinodal cryoablation for AVNRT. Two of the 4 pts were followed for 72 months without recurrent arrhythmia related to AVNRT. Thirty-eight pts underwent successful surgical intervention for AFl/F (30 right atrial Maze procedure and 8 cryoablation of the isthmus). Eighty-nine percent of pts were followed a mean of 37 ± 27 months (range 3 to 92 months) and 10 pts (40%) had recurrent AFl/AF.

Conclusion: Electrophysiologic study has an important role in diagnosis and management of pts with Ebstein's anomaly and supraventricular tachyarrhythmias, especially for APMRT and AVNRT. Surgical intervention for APMRT and AVNRT has an excellent result (100% success) without recurrence from these arrhythmias. Surgical intervention for AFl/F, while successful, is less effective in reducing the recurrence of this arrhythmia. These pts may require adjunctive medical therapy to prevent recurrence of Afl/F.

1113-19 Characterization of Intraatrial Reentrant Tachycardia in Patients After Mustard Operation for Transposition of Great Arteries Using Electroanatomic and Entrainment Mapping

Bernhard Zrenner, Jun Dong, Jürgen Schreieck, Harald Kaemmerer, Michael Schneider, Gjin Ndrepepa, John Hess, Claus Schmitt, German Heart Center Munich, Munich, Germany

Background: The underlying mechanism of intraatrial reentrant tachycardia (IART) after Mustard operation for transposition of the great arteries remains poorly understood due to complex atrial anatomy after extensive surgical procedures.
Methods: Eleven Mustard patients (age 29 ± 4.8 y; 2 women) were included in this study. During ongoing IARTs, electroanatomic mapping and entrainment mapping were performed in both systemic venous atrium (SVA) and pulmonary venous atrium (PVA). Radiofrequency ablation was attempted for all IARTs by bridging two barriers which constrained the reentrant circuit.
Results: Twelve IARTs were identified in 11 patients: 11 IARTs used a single-loop reentrant circuit, 1 IART used a dual-loop reentrant circuit. Eleven circuits were located mainly (n = 9) or entirely (n = 2) in the PVA, whereas 1 circuit was located entirely in the SVA. Nine (82%) of 11 single-loop reentrant circuits used tricuspid annulus (TA) as their central barrier. The remaining 2 IARTs rotated around the inferior vena cava (IVC) (n = 1) or ostium of the right upper pulmonary vein (n = 1). In the dual-loop reentry, the loops rotated around the atriotomy and the TA, respectively, and shared the conduit between the atriotomy and the posterior patch as their common pathway. Overall, 10 (83%) of 12 IARTs in 9 patients were successfully ablated. Seven (78%) of 9 peritricuspid circuits were abolished by linear ablation connecting the TA to the IVC (n = 4), incisional scar (n = 2), patch (n = 1). Of the 4 successful TA-IVC linear ablations, 2 were performed in both PVA and SVA, the other 2 in PVA alone.
Conclusions: In Mustard patients TA served as the most frequent central barrier of IART. Electroanatomic mapping combined with entrainment mapping facilitates understanding of IART mechanism and enables designing of individual ablation strategies.

1113-20 Atrial Mechanical Function Following an Intraoperative Linear Radiofrequency Procedure for Atrial Fibrillation

Liza Thomas, Anita C. Boyd, Michelle Hoy, Nelson B. Schiller, Stuart P. Thomas, David L. Ross, Westmead Hospital, Sydney, NSW, Australia, University of California San Francisco, San Francisco, CA

Background: Atrial function after linear radiofrequency (RF) ablation for treatment of atrial fibrillation (AF) is not well defined. It is important to evaluate atrial function and possible factors contributing to restored atrial function.
Methods: 29 patients (sinus rhythm (SR) at > 6mths) after RF procedure for AF (duration 56 ± 9 mth) were evaluated by echocardiography and compared with 33 patients with persistent AF (7 ± 2mth) (now post cardioversion in SR > 6months) and 42 normal controls. Biplane maximum and minimum LA volumes and ejection fraction (LAEF = (Vol max -Vol min/Vol max) x 100) were measured as well as mitral A wave velocity, A wave velocity time integral (VTI), atrial fraction (A VTI/ Total inflow VTI x 100) and atrial contraction velocity in late diastole (A') by PW Doppler tissue imaging at the septal mitral annulus.
Results: Mean ± SD and p value using ANOVA for multiple comparisons(see table)
Post hoc analysis for differences among groups indicated by *p< 0.05 vs Persistent AF and Normals,Ý = p<0.05 vs Normals
A' velocity similar to LAEF and atrial fraction demonstrated differences between the 3 groups.
Conclusions: Atrial function is restored with SR after the RF procedure and is lower than normal but comparable to cardioverted persistent AF. Thus decreased atrial function after RF ablation may largely be due to irreversible remodeling from preoperative AF in a group with more advanced disease of longer duration or decreased atrial compliance related to mechanical injury from the RF procedure.

Multiple comparisons by ANOVA for the 3 groups

	RF Group(n=29)	Persistent AF (n=33)	Normals (n=42)	p value
LA maximum Vol (ml)	59 ± 21.3*	70.6 ± 16.8Ý	38.7 ± 9.8	.0001
LA minimum Vol (ml)	41.1 ± 18.6Ý	41.8 ± 13.9Ý	18.7 ± 4.6	.0001
LA ejection fraction (%)	32 ± 12*	41 ± 12Ý	51 ± 9	.0001
Peak A vel (m/s)	0.54 ± 0.3Ý	0.69 ± 0.3	0.79 ± 0.2	.0001
A VTI (cm)	8.8 ± 4.7Ý	10.5 ± 3.4	11.5 ± 3.7	.025
Atrial Fraction (%)	27.3 ± 14*	37.4 ± 9Ý	46.2 ± 10.3	.0001
A' vel (cm/s)	4.9±1.4*	7.6±2.2Ý	9.5 ± 1.9	.0001